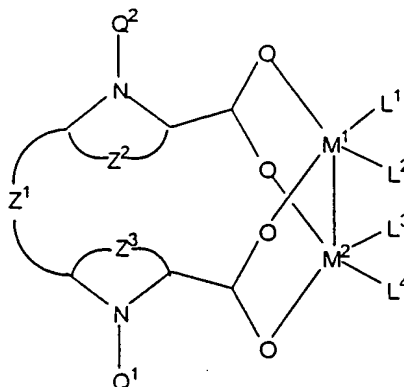


# ABSTRACT OF THE DISCLOSURE

Compounds having the formula:



are disclosed. M<sup>1</sup> and M<sup>2</sup> are the same or different and  
5 are transition metal atoms or ions; Z<sup>2</sup> and Z<sup>3</sup>,  
independently, are the atoms necessary to complete a 3-12  
membered heterocyclic ring; Z<sup>1</sup> is an alkylene or arylene  
group; Q<sup>1</sup> and Q<sup>2</sup> are the same or different and are  
electron withdrawing groups; L<sup>1</sup> and L<sup>3</sup>, taken together,  
10 represent -O-CR<sup>13</sup>-O-; L<sup>2</sup> and L<sup>4</sup>, taken together, represent  
-O-CR<sup>14</sup>-O-; and R<sup>13</sup> and R<sup>14</sup> are the same or different and  
are selected from the group consisting of alkyl groups  
and aryl groups or R<sup>13</sup> and R<sup>14</sup> represent alkylene or  
arylene groups that are directly or indirectly bonded to  
15 one another. Methods for making such compounds are also  
disclosed, as are intermediates which can be used in  
their preparation. Also disclosed are methods for  
carrying out C-H insertion reactions using bis-transition  
metal catalysts, such as the above compounds. Procedures  
20 for preparing d-threo methylphenidate, tolterodine, CDP-  
840, nominfensine, and sertraline, are described.